LEAN 101

Kanban

KANBAN *is often seen as a central element of the Lean approach and is probably the most widely used type of Pull signaling system. Kanban stands for card (Kan) and signal (Ban). Kanban is a visual flow control system, not a scheduling system.*

Lean 101 - Kanban

Lean = visually controlling and making the work flow

Kanban refers to a simple and effective visual control system that can be easily developed and introduced in many environments. Japanese in origin, the term stands for *card* (Kan) and *signal* (Ban).

Appropriately used, as part of a *Pull* signaling system, it's a key factor in achieving Just In Time (JIT) work results. A *pull* system controls the flow of work by moving materials/items/ people into/through the process only as the customer demands them, i.e. only when they are needed. The concepts embedded in Kanban have, of course, been around and used for years in all parts of the world in many industries and companies, long before it became systemized and first popularized in Japanese production methodologies in the 1970s.

It is important to understand that Kanban is a (visual) control system -- not a scheduling system. A Kanban system should be easy to understand, simple to visualize, and relatively easy to set up. Kanban systems are most commonly used within industries/companies where there is a stable demand and flow.

However, many organizations do not have a stable demand of any particular service or product. Often, as we all know, they can have a high service/work variety and even low volumes. In these instances, the Kanban system may need to be developed for sub-processes or steps, not the entire process.

KANBAN EXAMPLES

There are a number of different types of Kanban signals, including the following:

Product Kanban. This is the most straightforward form of Kanban, and these signals can take any number of forms, all basically doing the same job. Producing work/services or ordering materials upstream is only carried out when a downstream operation signals it is needed, i.e. an item is used/provided downstream and it is simply replaced. Think of this "backwards" – starting with the customer.

- a painted square on the ground or work station (when the square is empty of items, that is the signal to produce upstream – to fill the square),
- a card (when an item is used, a card is passed upstream), or
- a fax-ban or e-ban.

Whatever the signal, the effect is the same when a set number of items are used (1 to whatever is the appropriate number, depending on the work being done), then and only then will the prior, upstream operations/steps receive the "permission" (indicated by the Kanban) to begin doing/producing/ordering the specified item/work to fill the requirement.

Emergency or Rush Kanban. An emergency Kanban provides a way for rush work to be done. If a specific request/service/document/item is to be rushed through the process, then it has to be given and shown priority in some way. This could, for example, be routinely achieved with differently colored Kanban cards – Red is a common one. If a worker has a stack of "cards"/work to deal with, then the red "card" work would be done first, thus allowing it to be done more quickly and without requiring the unnecessary intervention of supervisors, etc. to make it a priority.

KANBAN RULES

1. A Kanban signal is only issued when the item/work it represents is used.
2. No Kanban, no new item (i.e. items/services/documents/etc. are only provided, made, or issued when a Kanban exists).
3. Only good items/services/documents/etc are issued.
4. No over-production.
5. Items/services/documents/etc are only made in the order that the Kanban cards are received (except for emergency/rush Kanbans).
6. Items/services/documents/etc. are only provided/made/issued in the number specified by the Kanban.
7. The number of Kanban cards should be reduced over time, and the problems that are encountered by doing this should be tackled as they are exposed.

Calculating the number of Kanban cards required :

Number of Kanbans **=** (Demand in period **x** Demand Cycle time **x** Safety stock) **÷** Batch size (or container quantity)